relationship between sky color and number of dust particles became quite close.

Studies of the dust content of the atmosphere [1] have shown that there is a decided correlation between atmospheric dust content and wind velocity, as the higher velocities tend to carry away impurities. Thus the apparent close relation between sky color and wind velocities is in reality but a secondary effect.

As would be expected, the amount of water vapor in the atmosphere has a strong influence on the color of the sky. Generally speaking, it has been found that the clearest or the bluest skies occur shortly after precipitation.

The correlation between sky color and radiation intensity is so close that it is nearly always possible to estimate with a surprisingly high degree of accuracy the value of the latter element by merely looking at the sky.

[1] Kimball, Herbert H. & Hand, Irving F. Investigations of the dust content of the atmosphere. MO. WEA. REV., Mar. 1924, 52:133-141.
Kimball, Herbert H. & Hand, Irving F. Investigation of the dust content of the atmosphere. MO. WEA. REV., June, 1925, 53:243-246.

HEAVY SNOWFALL OF APRIL 27 AND 28, 1928, IN UPPER OHIO VALLEY

By W. C. DEVEREAUX

[Weather Bureau, Cincinnait, Ohio]

One of the greatest snowfalls of record, not only for April, but for all months, occurred on April 27 and 28, 1928, in extreme eastern Kentucky, the mountains of North Carolina, portions of West Virginia, and southwestern Pennsylvania. This snowfall was unusual as it occurred in the extreme northwestern section of a general low area moving northeastward over the South Atlantic States, when the season was far advanced, and over a region much of which is comparatively free of heavy snowfalls.

The area of heavy snowfall extended from Asheville, N. C., to west-central Pennsylvania, a distance of 400

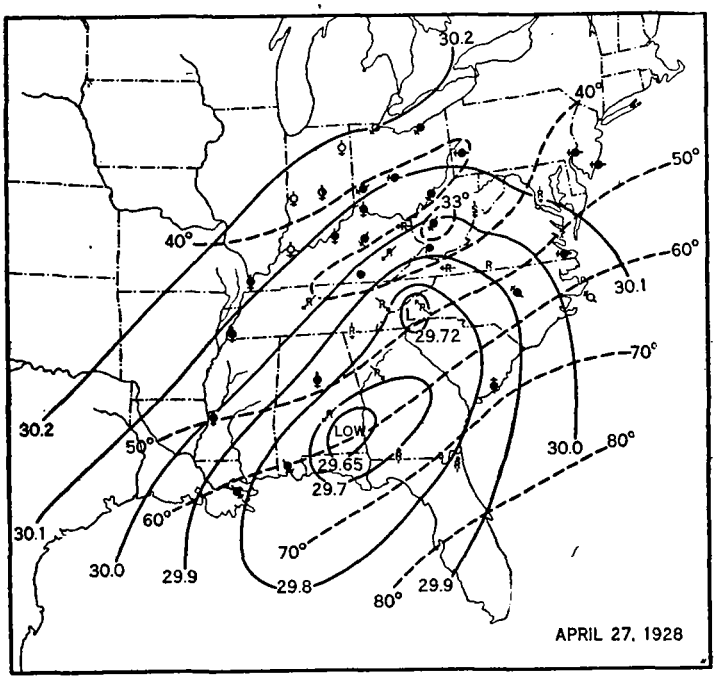

FIG. 1.—Weather map 8 a. m., 1928. For detailed data see Figure 2

miles. Within this region the surface of the ground varies mostly from 1,000 to 3,000 feet above sea level. With the exception of Mount Mitchell in North Carolina at an elevation of over 6,700 feet, the highest hills or so-called mountains do not exceed 3,000 feet in elevation, with a few exceptions in West Virginia. Although the differences in elevation between the valleys and the hilltops do not exceed a few hundred feet, the difference was sufficient to give snow on the hills and mostly rain in the valleys.

There was but little indication of heavy snow for West Virginia on the Daily Weather Map for 8 a. m. April 27. (See fig. 1.) At that time the general storm area was central over southern Alabama and moving northeastward. Snow was falling at the time of observation at Elkins, W. Va., and the wind was southeast at Asheville, N. C., which might be considered irregular, but otherwise nothing unusual was shown on the map.

Another map on a much larger scale, and for the Ohio Valley only, was prepared at the same time at the Cincinnati station. (Fig. 2.) Weather reports from river stations, in addition to the regular reports, were used in the preparation of this map. While the reports from the substations do not show atmospheric pressure the other weather elements can be used to advantage.

This special map shows a decided northward bulge of the barometric lines over the upper Ohio Valley, with a secondary depression fairly well defined over extreme western North Carolina, the center being near to and just west of Asheville at 8 a. m.

The special map shows that the isobars are crowded comparatively close together from eastern Tennessee to West Virginia, and heavy rain and snow started early that day in eastern Kentucky and all of West Virginia. Up to the time of observation more than an inch of precipitation had occurred along the Kentucky-Virginia line and at one station in West Virginia. This rapid development of an extensive area of precipitation was a good indication of the strength of the storm.

A careful study of all the data shows the development and growth of this slight secondary depression over the Tennessee-North Carolina line. The pressure began to fall at all the surrounding stations about 2 a. m. April 27, and rain started about the same time in extreme eastern Tennessee and extreme western North Carolina. The wind at Asheville was south from 2 a. m. to 4 a. m., southeast from 4 a. m. to 9 a. m. and north or northwest after 9 a. m. At Wytheville, Va., the wind was northeast from 2 a. m. to 4 a. m., east from 4 a. m. to 1 p. m., and then shifted to north and northwest.

Another special map for 12 noon, prepared later from mail reports, is reproduced as Figure 3. This map shows the northward bulge in the pressure lines,[1] and that the secondary depression was moving slowly northeastward and filling up. The wind shift and pressure changes indicate that the secondary depression passed Asheville about 9 a. m., Wytheville, Va., about 1 p. m., and merged with the general storm area during the afternoon of April 27. More important than pressure or wind elements on the noon map are the lines that show the time of beginning of precipitation. This is an element that should be shown on forecast maps. The northern bulge in the pressure lines disappeared during the afternoon of April 27 over the extreme eastern edge of the Ohio Valley. The wind at Pittsburgh, Pa., shifted from northeast to

[1] See figs. 1 and 2 for pressure lines.—Ed.

east at 10 a. m., and continued in that direction until 3 p. m., when it backed to northeast and later to north. The general drift of air from the Atlantic during the day of heaviest snowfall was to the west across Pennsylvania, then to the south across Ohio and to the southeast over West Virginia where another current was encountered from the Middle Atlantic coast. The meeting and mixing of these two currents appear to have been the cause of the heavy snowfall.

southwestern part of the State also. The heavy snow and the high wind together caused great damage to telephone and telegraph lines, the poles being broken by the hundreds east, south, and southeast of Pittsburgh. The State highway department (Sunday, 29th) reported roads blocked by snow in these districts, and advised only necessary traffic on other roads which were open but still in poor shape for heavy traffic. At Somerset, in Somerset County, 36 inches snow was reported on the

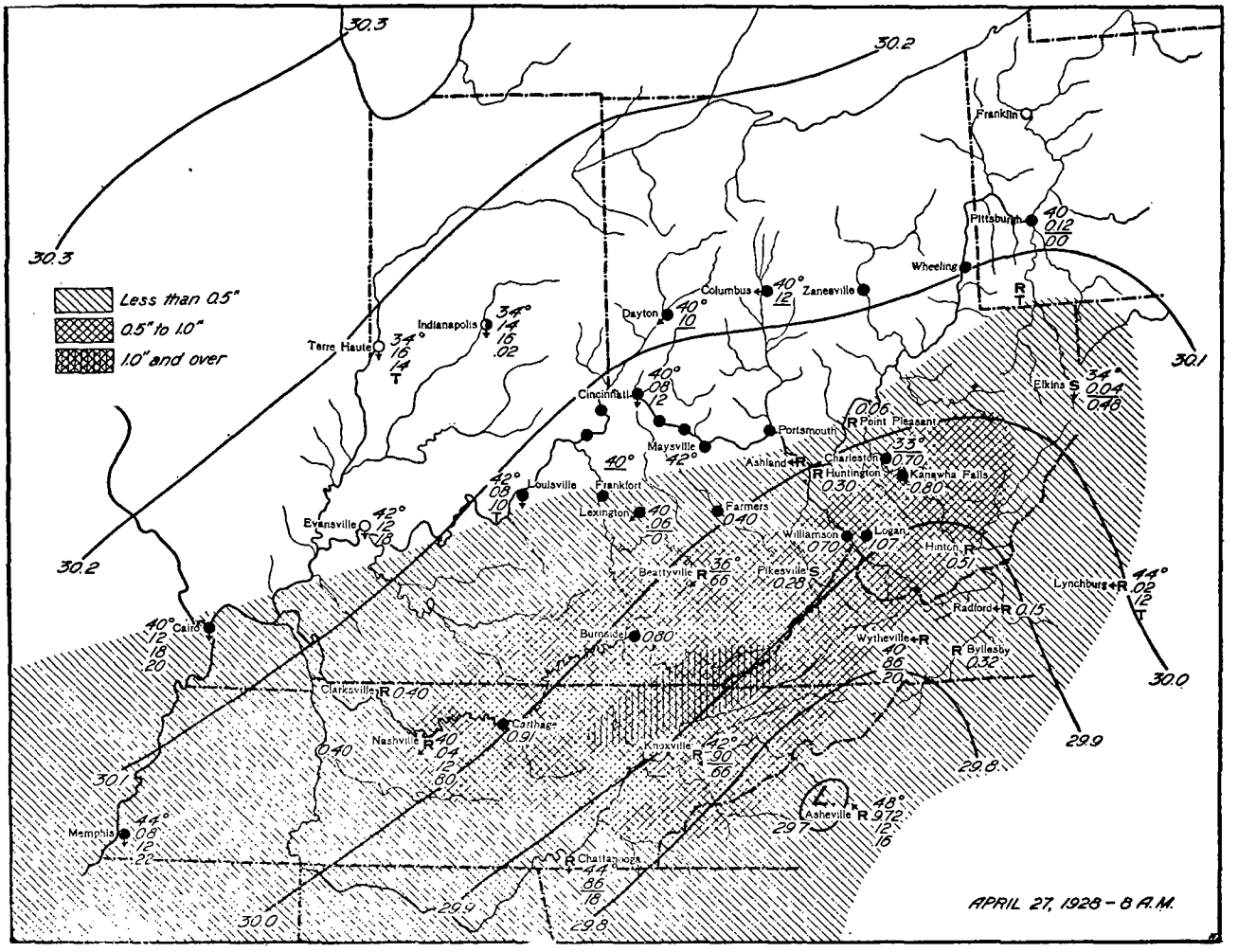

FIG. 2.—Weather map same date as Figure 1 but on a larger base; the map includes detailed data of temperature and precipitation at river stations in Ohio drainage, also temperature, pressure, wind velocity, and precipitation in order named at Weather Bueaur stations

Figure 4 shows the total precipitation and the total snowfall for April 27 and 28, 1928. The precipitation is the upper figure and the snowfall the lower figure. One station in West Virginia reported 40 inches of snowfall, several reported 30 inches or more, and 20 inches or more covered nearly one-half of the State. The largest amounts reported in other States were as follows: 36 inches in Pennsylvania, 15.5 inches in Kentucky, 14 inches in Virginia, and 13 inches in North Carolina.

The following extracts are brief descriptions of the heavy snowfall:

By WILLIAM S. BROTZMAN

[Weather Bureau, Pittsburgh, Pa.]

This is the worst snowstorm ever experienced in Pittsburgh so late in the year, and probably the worst for the ground; at Sand Patch, in same county, between 17 and 18 inches. Very little up the Allegheny, and still less west of Pittsburgh.

By HARRIS A. JONES

[Weather Bureau, Elkins, W. Va.]

The big snowstorm of April 27 and 28, 1928, was certainly a record breaker for April, and lacks but one of being the greatest in the history of the Elkins Weather Bureau station, 30 years record. On April 8, 1902, there was a snowfall of 16 inches, with a maximum depth of 16 inches. November 9, 1913, we had a snowfall of 18 inches, with a maximum depth on the 10th of 20 inches.

The snow started here shortly after midnight a. m. of the 27th, but it was so warm that only on the sod and on roofs did it accumulate until about mid-forenoon. By noon of the 27th we had about two inches of very wet